

IN THE CLAIMS:

Please amend the claims to read as follows:

1. (Currently amended) An optical transmission path monitoring system for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system provided with said optical transmission path monitoring system comprising:

an optical fiber monitoring probe light for monitoring optical fibers which constitute some parts of said optical transmission paths, and paths; and

an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-repeaters which constitute other parts of said optical transmission paths.

2. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 1, wherein:

the a wavelength of said optical fiber monitoring probe light is such a wavelength as makes the a wavelength dispersion of group delays over the a full length of said optical transmission paths negative, and negative; and

the a wavelength of said optical amplifier-repeater monitoring probe light is such a wavelength as makes the wavelength dispersion of said group delays over the full length of the optical transmission paths positive.

3. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 1, wherein:

the optical transmission paths have a zero dispersion wavelength which makes the a

wavelength dispersion of group delays over the a full length of said optical transmission paths zero, zero;

the a wavelength of said optical fiber monitoring probe light is on the a shorter wavelength side than said zero dispersion wavelength, and wavelength; and

the a wavelength of said optical amplifier-repeater monitoring probe light is on the a longer wavelength side than said zero dispersion wavelength.

4. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 1, wherein:

said wavelength division multiplexing optical transmission system has comprises two-core two-way optical transmission paths, and is provided with comprises a total of four probe lights including said optical fiber monitoring probe light and said optical amplifier-repeater monitoring probe light for delivering to each of the two outward optical transmission paths which said two-core two-way optical transmission paths have, and have; and every one of said four probe lights has a different wavelength from the others.

5. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 4, provided with further comprising:

probe light generating means for generating said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights, lights; multiplexing means for multiplexing said probe lights with signal lights and delivering the multiplexed lights to said an outward optical transmission path, path; loop back means for branching reflected light components generating from said

probe lights from said outward optical transmission path and coupling the branched lights with signal lights on said an inward optical transmission path, and path; and optical detecting means for detecting said light components transmitted by said loop back means and outputted from said inward optical transmission path, wherein: said optical transmission paths are monitored on the a basis of the an output of said optical detecting means.

6. (Original Claim) The optical transmission path monitoring system, as claimed in Claim 5, wherein:

 said optical detecting means optically detects by a coherent light detecting system said light components transmitted by said loop back means and outputted from said inward optical transmission path.

7. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 6, wherein:

 said coherent light detecting system is comprises an optical homodyne detection system using said optical fiber monitoring probe light from said inward optical transmission path as a received light and a light partially branched from said optical fiber monitoring probe light from said probe light generating means as a local oscillating light.

8. (Original Claim) The optical transmission path monitoring system, as claimed in Claim 5, wherein:

 said optical detecting means optically detects by a direct light detecting system said

light components transmitted by said loop back means and outputted from said inward optical transmission path.

9. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 5, wherein:

 said loop back means ~~is provided with~~ comprises two 2×2 optical couplers inserted into said optical transmission paths and mutually connected by one each of optical terminals.

10. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 9, wherein:

 said 2×2 optical couplers ~~are provided with~~ comprise light reflecting means for selectively reflecting said optical amplifier-repeater monitoring probe lights.

11. (Currently amended) The optical transmission path monitoring system, as claimed in Claim 5, further ~~provided with~~ comprising:

 means for alternatively selecting said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights for supply to said outward optical transmission path, and monitoring the optical fibers and the optical amplifier-repeaters on a time-division basis.

12. (Currently amended) An optical transmission path monitoring apparatus for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system ~~provided with~~ said

optical transmission path monitoring apparatus comprising:

probe light generating means for emitting said probe lights, lights;
multiplexing means for multiplexing said probe lights with signal lights and
delivering the multiplexed lights to an outward optical transmission path of the optical
transmission paths provided with said outward optical transmission path for transmitting
signal lights, an inward optical transmission path for receiving signal lights, and loop back
means for looping back between said two optical transmission paths, and paths; and

optical detecting means detecting light components transmitted by said loop back
means and outputted from said inward optical transmission path, wherein:

 said optical transmission paths are monitored on the a basis of the an output of said
 optical detecting means.

13. (Currently amended) The optical transmission path monitoring apparatus, as claimed in
Claim 12, wherein said probe lights comprise:

 an optical fiber monitoring probe light for monitoring optical fibers which constitute
 some parts of said optical transmission paths, and paths; and

 an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-
 repeaters which constitute other parts of said optical transmission paths.

14. (Currently amended) The optical transmission path monitoring apparatus, as claimed in
Claim 13, wherein:

 the a wavelength of said optical fiber monitoring probe light is comprises such a
 wavelength as makes the wavelength dispersion of group delays over the a full length of said

optical transmission paths ~~negative, and negative; and~~

~~the a wavelength of said optical amplifier-repeater monitoring probe light is comprises~~ such a wavelength as makes the wavelength dispersion of said group delays over the full length of the optical transmission paths positive.

15. (Currently amended) The optical transmission path monitoring apparatus, as claimed in Claim 13, wherein:

~~the a wavelength of said optical fiber monitoring probe light is on the a shorter wavelength side than a zero dispersion wavelength which makes the a wavelength dispersion of group delays over the a full length of said optical transmission paths zero, and zero; and the a wavelength of said optical amplifier-repeater monitoring probe light is on the a longer wavelength side than said zero dispersion wavelength.~~

16. (Currently amended) The optical transmission path monitoring apparatus, as claimed in Claim 13, wherein:

~~said wavelength division multiplexing optical transmission system has comprises two-core two-way optical transmission paths, said optical transmission path monitoring apparatuses being provided opposite each other, and is provided with comprises a total of four probe lights including said optical fiber monitoring probe light and said optical amplifier-repeater monitoring probe light for delivering to each of the two outward optical transmission paths which said two-core two-way optical transmission paths have, and have; and~~

~~every one of said four probe lights has a different wavelength from the others.~~

17. (Original Claim) The optical transmission path monitoring apparatus, as claimed in Claim 12, wherein:

 said optical detecting means optically detects by a coherent light detecting system light components transmitted by said loop back means and outputted from said inward optical transmission path.

18. (Currently amended) The optical transmission path monitoring apparatus, as claimed in Claim 17, wherein:

 said coherent light detecting system is comprises an optical homodyne detection system using said optical fiber monitoring probe light from said inward optical transmission path as a received light and a light partially branched from said optical fiber monitoring probe light from said probe light generating means as a local oscillating light.

19. (Original Claim) The optical transmission path monitoring apparatus, as claimed in Claim 12, wherein:

 said optical detecting means optically detects by a direct light detecting system said light components transmitted by said loop back means and outputted from said inward optical transmission path.

20. (Original Claim) The optical transmission path monitoring apparatus, as claimed in Claim 12, wherein:

 said loop back means is provided with two 2×2 optical couplers inserted into said

optical transmission paths and mutually connected by one each of optical terminals.

21. (Currently amended) The optical transmission path monitoring apparatus, as claimed in Claim 12, wherein:

said 2×2 optical couplers are provided with comprise light reflecting means for selectively reflecting said optical amplifier-repeater monitoring probe lights.

22. (Currently amended) The optical transmission path monitoring apparatus, as claimed in Claim 12, further ~~provided with~~ comprising:

means for alternatively selecting said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights for supply to said outward optical transmission path, and monitoring the optical fibers and the optical amplifier-repeaters on a time-division basis.

23. (Currently amended) An optical transmission path monitoring method for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system using, said method comprising:

using an optical fiber monitoring probe light for monitoring optical fibers which constitute some parts of said optical transmission paths, and paths; and
using an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-repeaters which constitute other parts of said optical transmission paths.

24. (Currently amended) The optical transmission path monitoring method, as claimed in Claim 23, wherein:

~~the a wavelength of said optical fiber monitoring probe light is comprises such a wavelength as makes the a wavelength dispersion of group delays over the a full length of said optical transmission paths negative, and negative; and~~

~~the a wavelength of said optical amplifier-repeater monitoring probe light is comprises such a wavelength as makes the wavelength dispersion of said group delays over the full length of the optical transmission paths positive.~~

25. (Currently amended) The optical transmission path monitoring method, as claimed in Claim 23, wherein:

~~said optical transmission path has a zero dispersion wavelength which makes the a wavelength dispersion of group delays over the a full length of said optical transmission paths zero, zero;~~

~~the a wavelength of said optical fiber monitoring probe light is on the a shorter wavelength side than said zero dispersion wavelength, and wavelength; and~~

~~the a wavelength of said optical amplifier-repeater monitoring probe light is on the a longer wavelength side than said zero dispersion wavelength.~~

26. (Currently amended) The optical transmission path monitoring method, as claimed in Claim 23, wherein:

~~said wavelength division multiplexing optical transmission system has comprises two-core two-way optical transmission paths, and is provided with comprises a total of four~~

probe lights including said optical fiber monitoring probe light and said optical amplifier-repeater monitoring probe light for delivering to each of the two outward optical transmission paths which said two-core two-way optical transmission paths ~~have, and include; and~~ every one of said four probe lights has a different wavelength from the others.

27. (Currently amended) The optical transmission path monitoring method, as claimed in Claim 26, said method comprising:

~~a step of generating said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights, lights;~~

~~a step of multiplexing said probe lights with signal lights and delivering the multiplexed lights to said outward optical transmission path, and path; and~~

~~a step of detecting said light components outputted from said inward optical transmission path by branching reflected light components generating from said probe lights from said an outward optical transmission path and looping back the branched lights onto said an inward optical transmission path, whereby:~~

whereby ~~said optical transmission paths are monitored on the a basis of the an output of said optical detecting means.~~

28. (Currently amended) The optical transmission path monitoring method, as claimed in Claim 27, whereby:

~~said light components outputted from said inward optical transmission path are detected by a coherent light detecting system at during ~~said step of~~ detecting light components.~~

29. (Currently amended) The optical transmission path monitoring method, as claimed in
Claim 28, whereby:

said coherent light detecting system is comprises an optical homodyne detection system using said optical fiber monitoring probe light from said inward optical transmission path as ~~receive a received~~ light and a light partially branched from said optical fiber monitoring probe light generated from said probe light generating means as a local oscillating light.

30. (Currently amended) The optical transmission path monitoring method, as claimed in
Claim 27, whereby:

said light components transmitted by said loop back means looping back and
 outputted from said inward optical transmission path are detected by a direct light detecting
 system at during said step of detecting light components.

31. (Original Claim) The optical transmission path monitoring method, as claimed in Claim 27, whereby:

said optical fiber monitoring probe lights and optical amplifier-repeater monitoring probe lights are alternatively selected for supply to said outward optical transmission path, and the optical fibers and the optical amplifier-repeaters are monitored on a time-division basis.